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STATE OF CALIFORNIA

Energy Resources Conservation And Development Commission

In the Matter of:

Application for Certification for the Carlsbad Energy Center Project

Docket No. 07-AFC-6

ENERGY COMMISSION STAFF'S SUPPLEMENTAL TESTIMONY

On June 30, 2011, the Energy Commission granted the Center for Biological Diversity's motion for a hearing and additional analysis on cumulative impacts and alternatives regarding three power plant projects that are the subject of power-purchase agreements proposed by San Diego Gas & Electric. The Commission remanded these matters to the Carlsbad Committee to take additional evidence and revise the Presiding Member's Proposed Decision as needed. The Commission also remanded 1) Conditions **LAND-2** and **LAND-3** for analysis of their environmental impacts and 2) grid reliability issues discussed by the California Independent System Operator (CAISO) during the June 30, 2011, Business Meeting.

In accordance with the Commission's Order, number 11-0630-1, the Energy Commission staff files its supplemental testimony, which is attached.

Dated: August 12, 2011

Respectfully submitted,

/S/_____

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STAFF SUPPLEMENTAL TESTIMONY

ALTERNATIVES

The Final Staff Assessment (FSA), dated November 12, 2009, stated that development of the Carlsbad Energy Center Project (CECP) would require the shutdown of Encina Power Station Units 1-3 (330 MW[1]) to generate emission reduction credits and facilitate the shutdown of Encina 4-5 (630 MW[2]). The FSA further testified that capacity roughly equivalent to that of the CECP was needed to allow the closure of Encina 1-3 without violating the California Independent System Operator (CAISO) local capacity requirements, given the planning assumptions used in the California Public Utility Commission's (CPUC) 2006 Long-Term Procurement Planning (LTPP) proceeding. Planning assumptions used in the 2010 LTPP indicate that, should preferred resources[3] be developed in targeted amounts, Encina 1-5 could be retired and local capacity requirements still be met even if the CECP were not constructed.[4] [I THINK WE SHOULD REVERSE THE ORDER OF THE FIRST TWO PARAGRAGHS]

The purpose of this testimony is to (a) reevaluate the no-project alternative in light of the changes in planning assumptions *cum* projected load-resource balances that have occurred in the interim, and (b) evaluate the alternative of the construction and operation of the Pio Pico Energy Center (305 MW) and Quail Brush Generation Center (100 MW) and repowering of the Escondido Energy Center (net increase of 10 MW). Together these projects are a possible alternative ("the PPA alternative") to the CECP as San Diego Gas & Electric has entered into power purchase agreements with the project developers/owners that would finance the construction/repowering and operation of these facilities. The PPAs await CPUC approval.[5]

No Project Alternative

If the CECP is not constructed, Encina 1-3 must comply by December 31, 2017with the State Water Resources Control Board (SWRCB) Policy that addresses the adverse effects associated with once-through cooling (OTC). The OTC implementation plan filed with the SWRCB by Cabrillo Power I LLC (parent company of EPS) on April 1, 2011, indicates that the owner will demonstrate compliance[6] of these units by shut down, but this can only occur if sufficient dependable generation capacity is in place in the San Diego local

[1] Estimated 2012 net qualifying capacity (NQC), posted at http://www.caiso.com/1796/179688b22c970.html#1b8eaa2643ed0.

[2] *Ibid.*

[3] Energy efficiency and demand response programs, renewable generation, and combined heat and power facilities.

[4] A projected load-resource balance for the San Diego area under LTPP planning assumptions can be found in *Prepared Track I Testimony of San Diego Gas & Electric Company*, submitted on May 19, 2011 in A.11-05-023, See p. 5. Available at http://docs.cpuc.ca.gov/EFILE/A/135778.htm

[5] A.11-05-023, filed May 19, 2011

[6] Projects must either demonstrate compliance via performance measures or cease the draw of ocean water that is causing the adverse effects.

reliability area to meet local reliability requirements imposed upon the CAISO, In the event that such capacity is not on line, the CAISO can petition for suspension of the final compliance date and "full evaluation of the final compliance dates contained in the policy,"[7] and provide the revenue needed to finance continued operation. Thus under the no-project alternative, if insufficient quantities of preferred resources are developed, the retirement of Encina 1-3 will be delayed. Whether sufficient resources will be developed to allow the shutdown of Encina units by December 2017 may not be known until a few months before that proposed shutdown date.

The 2010 LTPP estimates of development of preferred resources in the San Diego reliability area through 2020 include significant values for yet-to-be-developed energy efficiency and demand response programs, renewable generation, and combined heat and power. The California ISO will not allow these resources to count against the San Diego local capacity requirement until they are available.

- For energy efficiency, this requires funding and implementation; peak capacity values are estimated and incorporated into the load forecast
- For demand response programs, funding and implementation must be accompanied by demonstrated effectiveness in practice, or else conservative estimates of peak capacity values are used.
- For renewable generation and combined heat and power, the resources must be interconnected and on-line, or expected to be so by summer 2018, with estimates of peak capacity value based on historical or projected performance during peak hours.

Whether units at Encina will be needed for local reliability in the summer of 2018 will become gradually clearer over the years leading up 2018. If current practice is any guide, the California ISO will have to decide as to the summer 2018 need for capacity in San Diego/at Encina by October 2017. The studies done to determine local capacity requirements for San Diego in 2018 will be done in early 2017; utility-side of meter renewables and combined heat and power that are expected to come on line by the summer of 2018 will be included in the 2017 assessment. Demand response programs will likely have to demonstrate effectiveness in summer 2017 to be considered eligible to provide capacity in support of local resource adequacy requirements in 2018. The incorporation of peak capacity values for committed energy efficiency programs into the demand forecast used to determine local capacity requirements would require commitment to said programs before the demand forecast was performed in 2016 (prior to the California ISO's early-2017 study).

Building new generation capacity (either CECP or the PPA projects, or some subset thereof) likely means that the California ISO would no longer rely on Encina 1-3 for local capacity. However, since the CAISO could delay reliance on new capacity from new projects, demand reduction, efficiency improvements, and renewables until such capacity is considered certain, the CAISO could request that Encina remain available.

[7] *Statewide Water Quality Control Policy on the Use Of Coastal and Estuarine Waters for Power Plant Cooling*, Sect. 2.B.2.b

The same constraints apply to the potential retirement of Encina 4-5; the California ISO will request and ensure the finance of its continued operation beyond 2017 if there is insufficient capacity in the San Diego area to ensure local reliability without it. And while Cabrillo Power I LLC has stated its intent to comply with the OTC policy though structural modification and, to the extent necessary, operational controls on Encina 4-5, staff believes that the owner will only undertake this investment if granted a long-term contract for capacity that allows for cost recovery; this contract is likely only if there is insufficient capacity in the San Diego reliability area without these units. The construction of the CECP would facilitate, not require, the retirement of Encina 4-5.[8]

If, due to the realization of sufficient capacity from preferred resources in the San Diego Area during the coming decade, Encina 1-5 are not needed for local reliability and can retire even without the construction of the CECP (or Pio Pico, et al), the CECP would still be environmentally preferred to the no-project alternative. As stated in earlier testimony, dispatchable resources are needed to provide numerous system-wide capacity-related products and services, including those needed to facilitate the integration of large quantities of intermittent renewable resources. [9] The need for these services on a system-wide basis is independent of the need for local capacity in the San Diego area. The CECP, with fast-ramping capability and the ability to operate efficiently at partial load is ideally designed to provide integration services.

In its most recent analysis of the amount of flexible, dispatchable resources needed to manage a 2020 system with 33% renewables, the ISO concluded that the existing gas-fired fleet could provide the products/services needed to reliably operate the system with 33% renewables under certain assumptions.[10] These assumptions include the development of preferred resources on an ISO-wide basis in the amounts targeted in the 2010 LTPP, as well as the ISO gaining control over the commitment and dispatch of an increasing share of dispatchable generation, and the improved forecasting of the output of intermittent resources. However, even if sufficient dispatchable resources exist to successfully integrate 33% renewables, the no-project alternative would not be environmentally preferred to the CECP, as the current fleet utilizes relatively inefficient resources to accomplish this goal. Using the CECP to provide ramping, regulation, and load-following services would obviate the need to use less-efficient, less-flexible, higher-emitting, aging and/or peaking resources, as shown in the Final Staff Analysis,

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[8] It should be noted that the retirement of Encina 1 – 5 in its entirety, absent transmission upgrades would require a small amount of replacement generation in the area. The 2013 - 2015 Local Capacity Technical Analysis performed by the California ISO indicates that the Encina Power Station resides in a local reliability sub-area that has a local capacity requirement of 20 MW. As the Encina Power Station is the only generation facility in the sub-area, Units 1 -5 could not be retired in their entirety without the construction of 20 MW of new capacity within the sub-area that the PPA projects could not fulfill. Transmission upgrades could eliminate the sub-area (i.e., reduce the local capacity requirement to zero).

[9] .These needs are outlined in a study commissioned by the Energy Commission as part of its GHG OII. See *Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California,* MRW & Associates (CEC-700-2009-009-F, December 2009), submitted in California Energy Commission Docket #08-GHG OII-01 (Greenhouse Gas Emission Impact of Power Plants). Available at http://www.energy.ca.gov/2009publications/CEC-700-2009-009/CEC-700-2009-009-F.PDF.

[10] See, for example, *Track I Direct Testimony of Mark Rothleder on Behalf of the California Independent System Operator Corporation*, filed in R.10-05-006

Greenhouse Gas Table 6. Thus, even if the CECP were not needed to meet system-wide or local capacity requirements, it would displace older and less efficient generation.

In summary, the no-project alternative would mean a greater likelihood of the prolonged operation of Encina 1-5, with attendant OTC beyond the Policy dates; increased generation from less-efficient gas-fired generation, with a resulting increase in sectoral GHG emissions; less flexibility in the dispatch of the system, thereby limiting the integration of intermittent renewables into the system or requiring more frequent dispatch of higher-emitting resources to integrate a given portfolio of intermittent renewable resources.

By contrast, the construction and operation of the CECP would lead to the retirement of Encina 1-3 and, by sufficiently increasing reliability in the area, would reduce reliance on Encina 4- 5. Moreover, as stated in earlier testimony, the energy from the CECP would displace higher cost energy from Encina and other less efficient fossil plants, reducing GHG emissions from the electricity sector. This reduction in GHG emissions would occur regardless of whether the CECP is needed for capacity-related purposes (local or system-wide).

The PPA Alternative

The construction of Pio Pico and Quail Brush and the repowering of the Escondido Energy Center are a potential but questionable alternative to the CECP. None have permits as yet, and the PPAs associated with these projects must still be approved by the CPUC. Neither licensing nor approval of the PPAs is a certainty. The authorization for SDG&E to procure 530 MW of capacity in December 2007 was based on an estimated need for this amount of local capacity in the San Diego area. The Division of Ratepayer Advocates (DRA) has filed a protest of the application for approval of the PPAs[11] on several grounds, including failure to demonstrate continuing need and, even if additional local capacity is (found to be) needed, the possibility that projects preferable to those associated with the PPAs will emerge in the next procurement cycle, expected to commence with a decision in the CPUC's Log-Term Procurement Planning proceeding[12] at the end of 2011. A joint protest has been filed by four other parties as well on similar grounds.[13] DRA has indicated that it will urge that a new Request for Offer be issued for SDG&E's needed capacity, thereby restarting the PPA process.

Even if the CPUC were to approve the PPAs, and assuming such projects are licensed and built, the PPA projects would not necessarily be an environmentally-preferred alternative to the CECP. The proposed projects all have higher heat rates than the CECP and will thus produce more GHG emissions on a per-MWh basis. As such, this alternative may entail a higher-emission dispatch of the system to integrate any given set of renewable resources that meet a 33% renewable energy requirement.

[11] Available at http://docs.cpuc.ca.gov/efile/P/138000.pdf

[12] R.10-05-006

[13] Alliance for Retail Energy Markets, Energy Users Forum, Direct Access Customer Coalition and the Western Power Trading Forum. Available at http://docs.cpuc.ca.gov/efile/P/137998.pdf

Finally, the three PPA projects would not have GHG or other air emissions impacts that are "cumulative," in a CEQA context, with those of CECP. If CECP is built, it is highly unlikely that additional generation would be required in the local reliability area. Likewise, if the three PPAs are licensed and built, it is unlikely that the additional generation provided by CECP would be needed, and would receive a PPA. Thus, the PPA projects are more appropriately considered an alternative to CECP rather than as additional projects with cumulative emissions effects. However, even if one assumes that CECP *and* the three PPA projects are all built, the result would be a diminution of GHG emissions compared to those of the existing baseline for the electricity system. That is because none of these added projects would ever run except to displace existing older, higher emitting projects in the San Diego area. Thus, although construction of all of these projects is very unlikely to occur, and would likely result in investment in unneeded capacity, the consequence for GHG emissions would not be significant, but would in fact be positive.

AIR QUALITY

In order to assess and compare the air quality impacts of CECP against those of the proposed SDG&E PPA projects, the PPA project designs need to be understood and contrasted with CECP. The following provides summaries of the technology and operating limits that are permitted or proposed for the three PPA projects:

Pio Pico Energy Center Project

The Pio Pico Energy Center Project (Pio Pico) is comprised of three LMS100 simple cycle turbines and includes hybrid wet/dry cooling, generating about 305 MW. The LMS100 gas turbine is the most efficient simple cycle turbine currently available. This project is proposed to be operated up to 4,335 hours, including startups and shutdowns. The proposed Pio Pico project site is located 46 miles south-southeast of the proposed CECP.

Quail Brush Generation Project

The Quail Brush Generation Project (Quail Brush) is comprised of eleven natural gas fired internal combustion (IC) engines. Each engine is rated at 9.3 MW and the total project is rated at 102.3 MW. Quail Brush is seeking to be permitted to a maximum use of 4,032 hours per year per engine, with 3,800 hours at full load. The proposed Quail Brush project site is located 26 miles southeast of the proposed CECP.

Escondido Energy Center

The Escondido Energy Center (Escondido) project, which has obtained an Authority to Construct permit from the San Diego Air Pollution Control District, would replace an existing, older simple cycle gas turbine facility with a newer, more efficient LM6000 simple cycle gas turbine. This project upgrades and replaces the existing Wellhead Escondido power plant (formerly MMC Escondido) and as a replacement project would only marginally increase available generating capacity (less than 5 MW increase) up to about 47 MW. Operation would be limited to 4,400 hours per year, including 400 hours of startup time. The proposed Escondido project is located 13 miles east of the proposed CECP.

In comparison to the PPA projects, the CECP is a combined cycle project which generates electricity more efficiently using less fuel for the same amount of electricity generation.

Direct Impacts

The air quality emissions per MW of generation for the three PPA projects compared with CECP are provided in **Air Quality Supplemental Table 1**. These emissions are based on the project's annual emission summary, or staff estimate using projects with similar gas turbines/engines, for each project at its permitted maximum level of operation.

Air Quality Supplemental Table 1
CECP and PPA Project Criteria Pollutant Emission Rates (lbs/MWh)

Project	NOx	CO	VOC	SOx	PM10
CECP[1]	0.072	0.208	0.019	0.005	0.037
Pio Pico[2]	0.108	0.148	0.032	0.006	0.057
Quail Brush[3]	0.209	0.324	0.292	0.025	0.155
Escondido[4]	0.110	0.147	0.029	0.021	0.062

Sources:
1 – CEC 2009 - CECP FSA, Air Quality Table 18 and Greenhouse Gas Table 3
2 – Pio Pico 2011
3 – Emissions developed by proxy using Wartsila engine project Eastshore (CEC 2007).
4 – Emissions developed by proxy using LM6000 gas turbine project Orange Grove Project (CEC 2008).

The CECP has criteria pollutant emissions rates that are lower than the three PPA projects, with the exception that CECP's CO emissions are higher than Pio Pico and Escondido due to high start-up emissions. The higher CO values were evaluated in the FSA and determined to not cause or contribute to violations of CO ambient air quality standards. The state and San Diego County are in attainment of all CO standards, and nowhere in the state are CO offsets required given the relatively "clean" levels of CO, so the differences in CO emission factors are not germane to the relative comparison of the potential projects.

Air Quality Supplemental Table 2
CECP and PPA Project Maximum Annual Criteria Pollutant Emissions (tons/year)

Project	MW	GWh	NOx	CO	VOC	SOx	PM10
CECP[1]	558	2,089.7	75.6	217.3	20.1	5.6	39.0
PPA Combined	454	1,918.2	124.7	178.3	83.9	11.4	75.5
Pio Pico[2]	305	1,301.1	70.4	96.4	20.7	4.1	37.2
Quail Brush[3]	102	412.5	43.0	66.8	60.3	5.2	31.9
Escondido[4]	47	204.6	11.3	15.0	3.0	2.1	6.4

Sources:
1 – CEC 2009 - CECP FSA, Air Quality Table 18
2 – Pio Pico 2011
3 – Air Quality Supplemental Table 1 MW/hr values multiplied 412,473 MW-hrs.
4 – Air Quality Supplemental Table 1 MW/hr values multiplied 204,600 MW-hrs.

The actual emissions for each of these projects would depend on how much each project actually operates, how the project is dispatched or used, and the proportion of total operating time in startup or shutdown mode. Annual permitted criteria pollutant emissions from CECP are higher than any one of the PPA projects due to the fact CECP is a much larger project; however, CECP annual permitted emissions are less than the combined permitted emission of the three PPA projects (again, except for CO). This is true even though CECP could provide over 20 percent more capacity (558 MW vs. 454 MW) and nearly nine percent more energy (2,089.7 GWh vs. 1,819.2 GWh). So, it is clear that the PPA projects would not provide a region-wide air quality benefit in comparison with CECP.

Cumulative Impacts

Staff's cumulative air quality assessment is focused on two primary analyses, as identified in the FSA, and listed again below (CEC 2009):

- a summary of projections for criteria pollutants by the air district and the air district's programmatic efforts to abate such pollution;
- an analysis of the project's *localized cumulative impacts*, the project's direct operating emissions combined with emissions from other local major or proposed emission sources;

From a Clean Air Act program standpoint all of these projects would have less than significant cumulative air quality impacts as long as they are permitted by and follow the rules of the San Diego Air Pollution Control District (SDAPCD). The SDAPCD rules and regulations have been designed to maintain or gain attainment of the Ambient Air Quality Standards, and each of these projects would be required to meet Best Available Control Technology (BACT) requirements and obtain offsets, if necessary, based on SDAPCD rules.

Staff's localized cumulative impact assessment is concerned with the potential for large emissions sources to interact in the local environment, so staff limits this localized impact assessment as follows (CEC 2009):

> *"…Energy Commission staff (or the applicant) works with the air district to identify all projects that have submitted, within the last year of monitoring data, new applications for an authority to construct (ATC) or permit to operate (PTO) and applications to modify an existing PTO within six miles of the project site. Based on staff's modeling experience, beyond six miles there is no statistically significant concentration overlap for non-reactive pollutant concentrations between two stationary emission sources."*

The PPA projects are located well over 6 miles from the proposed CECP, and so would not create localized cumulative non-reactive, directly-emitted (called "primary") pollutant impacts (or in other words, the emissions from the sources would not directly interact at a common point or at common receptor).

Some pollutant emissions react, or chemically change, after leaving the stack. Specifically, VOCs and NOx can form ozone and SOx and NOx and directly-emitted particulate can

form PM2.5. These so-called “secondary” pollutants form in various complex reactions, as explained more fully in the FSA. These secondary pollutants form over time and at distances from the sources. These emissions can be mitigated with regional offsets when an area is determined to be an area not in attainment of the respective standards. CECP will be fully offset either due to the District NOx offset requirements at a ratio of 1.2:1 (and additional VOC to NOx ratio of 2:1) or due to assessment of environmental impacts under CEQA that lead to mitigation at a ratio of 1:1 for PM10, SOx and VOC. A large proportion of the CECP emissions are “offset” from the shutdown of the adjacent Encina 1-3 Units, and the remaining permitted CECP net emissions increase would be offset from sources in the District’s emission reduction credit (ERC) bank. Staff and the District would work to ensure that offsets and other air quality mitigation would be provided for the PPA projects, as appropriate. However, the location relative to each project, and the potential efficacy of that mitigation is not known at this time.

Summary

The CECP is a more efficient combined cycle power plant that would generally emit lower quantities of criteria pollutants per MW generated than the PPA projects, and the addition of the PPA projects would not cause significant cumulative impacts. The potential construction and operation of the PPA projects do not alter staff’s air quality impact assessment of the CECP, even assuming all three PPA projects and CECP are constructed.

GREEN HOUSE GASES (GHG)

Direct/Indirect/Cumulative Impacts

Staff’s FSA testimony showed the GHG emissions per megawatt-hour (MWh) of energy generated for the proposed CECP (CEC 2009, FSA Greenhouse Gas Table 3) and the existing San Diego gas-fired generation sources (CEC 2009, FSA Greenhouse Gas Table 6), and provided detailed unit-by-unit GHG emissions per MWh for the now-retired South Bay boiler units and the Encina boiler units (CEC 2009, FSA Greenhouse Gas Table 7). All of this information showed that CECP’s GHG emissions per unit of energy generated would be lower than almost all of the existing San Diego area natural gas-fired generation resources, and all that are designed/permitted as peaker projects. FSA Greenhouse Gas Table 5 also showed five additional proposed projects (CEC 2009). Of those five additional projects, the combined-cycle Otay Mesa and simple-cycle Orange Grove projects are now operating. Otay Mesa has a GHG emission rate that is slightly lower than the proposed CECP, while the Orange Grove project has a higher GHG emissions rate than the proposed CECP. The other three projects shown in FSA Greenhouse Gas Table 5 are in various stages of permit review or construction. In addition to these projects, since the publication of the FSA in 2009, the three PPA projects have been proposed. A comparison of the direct operating greenhouse gas emissions for the three PPA project compared with the CECP are provided in **GHG Supplemental Table 1**.

Greenhouse Gas Supplemental Table 1
CECP and PPA Project Operating Annual Generation
and GHG Emissions (CO_2, MT/MWh)

Proposed Project	Maximum Annual Generation GWh	CO_2 Emissions Rate ($MTCO_2/MWh$)
CECP[1]	2,089.7	0.404
Pio Pico[2]	1,301.1	0.477
Quail Brush[3]	412.5	0.433
Escondido[4]	204.6	0.526

Sources:
1 – CEC 2009 - CECP FSA, Greenhouse Gas Table 3
2 – Pio Pico 2011
3 – Booth 2011, Wartsila 2011
4 – Orange Grove 2008. Moore 2011.

Strictly from a GHG emissions and energy efficiency perspective, based upon Greenhouse Gas Supplemental Table 1 the CECP would be preferable to the three PPA projects; however, there are other factors that come into play in determining overall project operation, and ultimately, the GHG emissions produced. Project size and flexibility of operation, as well as project location and usefulness to specific load pockets, are also considerations. It is staff's determination that new, more efficient natural gas fired generation would reduce system-wide GHG emissions through the replacement of higher emitting resources (CEC 2009, FSA Greenhouse Gas Table 6) and any of the projects listed above would have this same finding. However, the CECP project has the lowest GHG emissions rate and -- strictly from a GHG emissions perspective -- would be preferable to the slightly higher emitting PPA projects.

As noted previously it is unlikely that all of this generation is needed in the San Diego area and that it is unlikely that all three PPA projects and CECP would all be constructed, but if they were all constructed they would be dispatched, given needs constraints, with the more efficient facility dispatched first and when any or all of these projects are operating they would displace less efficient power generation and would result in an overall system-wide GHG emissions reduction. The potential construction and operation of the PPA projects do not alter staff's GHG impact assessment of the CECP.

CONDITIONS LAND-2 AND LAND-3

At the June 30, 2011 Business Meeting, the Commission remanded the Carlsbad PMPD back to the Carlsbad Committee for several reasons, including to "take evidence and revise the PMPD as needed on … issues associated with Conditions LAND-2 and LAND-3 and their environmental impacts …." (Commission Order on Motions of Center for Biological Diversity, Robert Simpson, and Carlsbad Energy Center, LLC, June 30, 2011, p. 1.) Following is an assessment of reasonably foreseeable environmental impacts and feasible mitigation measures in regard to the possible demolition of the Encina Power Station (EPS) that **LAND-2** and **LAND-3** contemplate. Although the demolition is subject to the results of events and decisions outside the applicant's and the Energy Commission's control, staff nonetheless provides this analysis per Commission Order with the caveat that, consistent with its Final Staff Assessment published in November of 2009, we still contend that the CECP provides "Extraordinary Public Benefits" to the local and regional communities irrespective of EPS's demolition as may occur under LAND-2 and LAND-3. Specifically, staff reiterates the following benefits that would accrue as a result of the CECP's construction and operation:

- Elimination of hundreds of millions of gallons of once-through-cooling (OTC) seawater currently permitted for use by EPS Units 1-3;
- Efficient and reliable in-basin generation necessary for the integration of increasing amounts of renewable generation required by the state's 33% Renewable Portfolio Standard;
- Completion of the City of Carlsbad's "Rail Trail" network the CECP will provide;
- Tens of millions of dollars in socioeconomic benefits conveyed to the local and regional economy through the construction and operation of the CECP; and,
- Initiation of steps that could lead to the retirement of all five EPS units, ultimately resulting in the redevelopment of over nearly 70 acres of existing industrial property west of the railroad tracks into mixed commercial uses that will benefit the city.

Background

In September 1997, the City formed the South Carlsbad Coastal Redevelopment Area and adopted the associated redevelopment plan. The South Carlsbad Coastal Redevelopment Project Area Plan (SCCRPAP) requires that the Carlsbad Housing and Redevelopment Commission determine whether an "extraordinary public purpose" exists for any proposed projects within the redevelopment zone. While not specifically defined or stipulated within the SCCRPAP, the city contends that benefits which constitute an "extraordinary public purpose" be city-centric, rather than regional in scope. In this regard, the city has consistently referred to the Carlsbad Seawater Desalination Project as an appropriate example of a project exhibiting an "extraordinary public purpose" due to its ability, among other things, to provide the city residents w/ 50 million gallons/day of fresh desalinated drinking water.

The City argues that "the CECP would not serve an extraordinary public purpose because it (1) intensifies current industrial use of the property; (2) does not provide for a public use; (3) does not provide a plan for demolition of the existing power plant that will fall into disuse; and (4) does not provide for future redevelopment of the site as required by California redevelopment law. (City Opening Brief, pp. 60 – 61.)

In its PMPD, the Carlsbad Committee found the extraordinary public purposes described by staff in its FSA (i.e., closure of units 1-3, reduced OTC use, greater generation efficiency and lower emissions for the amount of electricity generated, and better integration of renewable generation) compelling, but indicated a desire to explore a more direct benefit to the City. Specifically, the Committee suggested that a desirable benefit, articulated by the City[14] would be the removal and demolition of the Encina Power Station (EPS) infrastructure, including its 200-ft main building enclosing EPS Units 1-5, and its 400-foot tall exhaust stack, once EPS units 1 through 5 permanently cease operations and shut down.

Accordingly, subsequent to the last evidentiary hearing on May 19 and May 20, 2011, the applicant and the City negotiated language stipulating the framework by which EPS removal and demolition would occur. Subsequently, the applicant and City proposed including Conditions of Certification **LAND-2** and **LAND-3** providing for the planning, permitting, and financing of the removal of EPS Units 1–5 and its infrastructure, once they are no longer needed to support the regional electricity system.

At the request of the negotiating parties, the Committee included these conditions in the PMPD Errata, with the addition of an annual reporting requirement, which read as follows:

LAND-2 On or before January 1, 2016, the project owner shall prepare and submit a Demolition, Removal, and Remediation Plan (DRRP) to the Compliance Project Manager (CPM), the City of Carlsbad, and the Carlsbad Redevelopment Agency. The DRRP shall propose the process, schedule, and legal requirements for the demolition, removal, and remediation of the Encina Power Station (Units 1 through 5), associated structures, the black start unit and the exhaust stack. As part of completion of the DRRP, project owner shall consult with the California Energy Commission, the California Coastal Commission, the City of Carlsbad, the Carlsbad Redevelopment Agency, the San Diego Regional Water Quality Control Board, the San Diego Air Pollution Control Board, and the California Independent System Operator to ensure the DRRP best reflects the procedural and substantive requirements that will apply to the site.

[14] (page 23: http://www.energy.ca.gov/sitingcases/carlsbad/documents/others/2009-02-05_City_of_Carlsbad_Comments_on_PSA.pdf)

On or before January 1, 2017, project owner shall prepare and submit to the CPM, the City of Carlsbad, and the Carlsbad Redevelopment Agency, a study of the estimated costs associated with implementing the DRRP.

Project owner shall demonstrate, to the CPM's satisfaction, fiscal capability to implement the DRRP prior to commencement of demolition activities. Such demonstration could be accomplished by submittal of a financial plan, deposit of funds into a dedicated account, or any combination thereof.

Concurrent with submittal of the DRRP, or by a date mutually agreed to by project owner and the Carlsbad Redevelopment Agency, project owner shall initiate the process with the Carlsbad Redevelopment Agency for redeveloping the existing Encina Power Station area of the project by submitting a redevelopment application.

Verification: On or before January 1, 2016, project owner shall provide the DRRP to the CPM for review and approval and to the City of Carlsbad, the Carlsbad Redevelopment Agency, and the California Coastal Commission for review and comment. The City of Carlsbad and the Carlsbad Redevelopment Agency shall provide comments on the DRRP to the CPM and project owner within 60 days or a date mutually agreeable to project owner and the City of Carlsbad and the Carlsbad Redevelopment Agency.

On or before January 1, 2016, project owner shall submit to the CPM evidence that the redevelopment process with the Carlsbad Redevelopment Agency for redeveloping the Encina Power Station site has begun or shall submit to the CPM evidence of a later mutually agreed upon date by project owner and the Carlsbad Redevelopment Agency to begin the redevelopment process.

On or before January 1, 2017, project owner shall submit the results of the study on estimated costs of implementing the DRRP to CPM for review and approval and to the City of Carlsbad and the Carlsbad Redevelopment Agency for review and comment. The City of Carlsbad and the Carlsbad Redevelopment Agency shall provide comments on cost estimate to the CPM and project owner within 60 days or a date mutually agreeable to the project owner and the City of Carlsbad and the Carlsbad Redevelopment Agency.

The project owner shall report to the CPM on June 30, 2012 and every June 30 thereafter, until notified by the CPM that reports are no longer required, as to the progress made toward satisfaction of this Condition and Condition LAND-3. The reports shall include all relevant information, including an assessment of the factors which continue to require that any or all of Units 1 through 5 and the black start unit remain operational.

LAND-3 On or before July 1, 2016, project owner shall submit applications for required permits and approvals for demolition, removal, and remediation of the Encina Power Station (Units 1 through 5), associated structures, the black start unit and the exhaust stack.

Upon the commencement of commissioning activities of the project, project owner shall request permission from the California Public Utilities Commission (CPUC) to permanently shut down Units 1 through 5 at the

Encina Power Station and the black start unit. Within six months following the shutdown of Units 1 through 5 at Encina Power Station and the black start unit pursuant to the above CPUC approval, and in compliance with all permits and approvals necessary to perform such activities, project owner shall commence demolition, removal, and remediation of the Encina Power Station (Units 1 through 5), all associated structures, the black start unit and the exhaust stack.

Verification: Project owner shall provide evidence to the CPM, not later than September 1, 2016, of the submittal of permit and approval applications to required agencies for the demolition, removal and remediation.

Within six months following approval by the CPUC, project owner shall demonstrate to the satisfaction of the CPM that it has shut down Units 1 through 5 of Encina Power Station and the black start unit, and commenced the demolition, removal, and remediation. Concurrent with such demonstration, project owner shall also demonstrate compliance with any fiscal capability funding requirements related to the CPM's approval of the financial plan for demolition, removal and remediation in LAND-2.

Within 36 months of the start of demolition, removal, and remediation, the project owner or its parent company shall demonstrate to the satisfaction of CPM that demolition and removal of the Encina Power Station Units 1 through 5, all associated structures, the black start unit and the exhaust stack and remediation of the site is complete.

ASSOCIATED ISSUES and ENVIRONMENTAL IMPACTS

The EPS has been in operation as a power generating station since 1954 without a change in the industrial land use designation of the site. It is surrounded to the north by the Agua Hedionda Lagoon, to the east by Interstate 5 (I-5), to the south by the San Diego Gas & Electric (SDG&E) Cannon Substation, and to the west by the Atchison, Topeka and Santa Fe (AT&SF) Railway/North County Transit District (NCTD) Rail Corridor. Surrounding land uses include open space, agriculture, Pacific Ocean public beaches, residential communities and transportation corridors.

Staff reviewed **LAND-2** and **LAND-3** to preliminarily determine the technical areas where potential issues and environmental impacts would most likely occur from EPS's Demolition, Removal, and Remediation Plan (DRRP). As is stipulated within the conditions, and affirmed by the City of Carlsbad and the Carlsbad Redevelopment Agency in their Status Report filed July 26, 2011, the City of Carlsbad will coordinate the regulatory review of demolition activities as the lead agency under the California Environmental Quality Act (CEQA).Staff nevertheless reviewed technical disciplines where obvious environmental impacts from the demolition are expected, based on available information, including the following issue areas:

- Air Quality
- Biological Resources
- Cultural Resources

- Hazardous Materials Management
- Noise
- Public Health
- Soil & Water Resources
- Traffic & Transportation
- Visual Resources
- Waste Management
- Worker Safety / Fire Protection

Air Quality

The demolition of the Encina Power Station (EPS) could occur only after the decommissioning of all five boiler units. The CECP would require the decommissioning of boiler units 1-3 to provide offsets for CECP, but the EPS facility does not have separate boiler buildings or stacks that can be demolished separately, so the EPS demolition can proceed only after all five boiler units are decommissioned. While there is no regulatory requirement that specifically forces the decommissioning of boiler units 4-5, there are requirements that would have to be followed related to the use of the ocean intake/outfall, one of which could be the decommissioning of all boilers but decommissioning is only one of several compliance options.

Demolition activities would include the use of diesel-fueled heavy equipment to demolish and remove the existing boilers, boiler building, stack and other EPS facilities. The types of direct emission sources are similar to those required for CECP construction, namely, off-road equipment, heavy haul trucks, and employee commute trips. In this case the off-road equipment is needed to demolish the structures rather than build structures, to handle demolition waste, to restore/re-grade the site; and on-road heavy truck trips are needed to haul the waste/recycled materials rather than bring in structure components and raw construction materials. Additional offshore work may be necessary, if the Carlsbad Seawater Desalination Project is not built, depending on the method of ocean water intake decommissioning that would be required to be performed. An EPS demolition project specific emissions estimate would be required as part of the City of Carlsbad's CEQA process for the demolition project, prior to whenever the EPS demolition would occur. The project specific emissions estimate would need to account for site specific factors, such as schedule and intensity of this demolition project, the trip distances required for demolition waste/recycle haul off, and the effectiveness of project specific mitigation measures required by the City. Regardless of the exact duration and activity of the EPS demolition activities the emissions and ambient air quality impacts would be short-term, a few years at most, and would be mitigated as considered appropriate by the City.

In addition to the short-term demolition emissions, the re-use of the EPS property after demolition and property restoration will create both short-term and long-term emissions. After EPS demolition and property restoration it is likely that construction will occur at the site for its eventual re-use. The exact nature of the property re-use is speculative at this time, but re-use as a park or other recreational facility would require the construction of new facilities and would create additional traffic trips in the area that would increase motor vehicles emissions near the site and in the surrounding area. It is speculative at this point to determine what would be the emissions changes from site re-use construction and

operation, but any such emission increases, given a recreational re-use, are assumed to be well below the direct emissions that would occur during EPS demolition.

While the Energy Commission will not be responsible for the certification, mitigation, or monitoring of these future EPS demolition activities, staff recommends that appropriate mitigation measures be employed to reduce diesel engine exhaust emissions and fugitive dust emissions from the demolition activities. Staff recommends that the City consider mitigation measures as stringent as recommended Conditions of Certification AQ-SC3 and AQ-SC4 for fugitive dust control, and AQ-SC5 for off-road diesel fueled engine emission control. Additionally, we would suggest that the City considers a requirement for the use of Tier 4 compliant off-road engines, in place of the Tier 3 engine requirement of AQ-SC5, if such an upgrade is feasible due to the future availability of Tier 4 equipment as determined at the time of EPS demolition. In addition to these measures staff suggests the City consider a measure requiring the use of new low emitting on-road heavy haul trucks, similar to the drayage truck mitigation currently employed by the Port of Long Beach, to reduce diesel emissions from dedicated truck fleet that will be necessary to make the very large number of the waste/recycle material haul trips. The EPS facilities that would be demolished are much more massive than the new CECP facilities, so the addition of mitigation for the high volume heavy on-road truck trip emissions caused by hauling the waste/recycle materials may be a reasonable measure during EPS demolition.

Biological Resources

According to the California Environmental Quality Act (CEQA) Guidelines, direct impacts are a result of construction (demolition) of a project, and occur at the same time and place as project activities. Indirect impacts are caused by the project, but can occur later in time or are farther removed in distance from the project site, but are reasonably foreseeable and project-related. The biology section of the city's environmental review will assess the potential for direct and indirect impacts of demolition activities to biological resources and will suggest mitigation, as necessary, to reduce adverse impacts to a level of less than significant.

Demolition of Encina Power Station (EPS) Units 1 - 5 has the potential to impact biological resources associated with the nearby Agua Hedionda Lagoon. Agua Hedionda Lagoon provides habitat for several special status species and is included in the North County Multiple Species Habitat Conservation Program and the Habitat Management Plan (HMP) for Natural Communities in the city of Carlsbad.[15]

If demotion activities are restricted to the existing footprint of the EPS, then direct impacts to sensitive biological resources would be unlikely since the site is currently an industrial facility and devoid of any biological resources including special-status species. However, the Agua Hedionda Lagoon supports important populations of special-status species such as the southwestern pond turtle, white-faced ibis, and western snowy plover and provides foraging habitat for American peregrine falcon and osprey. The estuarine and marsh habitat surrounding the lagoon provides suitable nesting habitat for special-status species such as the California least tern, elegant tern, Belding's savannah sparrow, California

[15](http://www.carlsbadca.gov/services/environmental/hmp/docs/Documents/regulatory/hmp/@CompleteHMP.pdf)

brown pelican, and coastal California gnatcatcher. Critical habitat for the tidewater goby exists within one mile of the EPS, and is comprised of the outer, middle, and inner portions of Agua Hedionda Lagoon. This habitat could be impacted by the demolition project absent appropriate mitigation, such as not allowing site runoff to impact the adjacent lagoon.

Demolition activities will most likely result in a short-term, temporary increase in the ambient noise level. Existing operations at the EPS, traffic on Interstate 5, and the rail corridor create elevated ambient noise to which most local wildlife species have acclimated. However, excessive noise from demolition has the potential to disrupt the nesting, roosting, or foraging activities of sensitive wildlife, especially wildlife in the middle lagoon of Agua Hedionda. For land uses adjacent to estuarine habitat, the HMP specifies standard best management practices, which require attenuation measures for activities that generate noise levels greater than 60 decibels (dBA) occurring within 200 feet of important breeding habitat during the breeding season.[16]

Similar to what is being required for the Carlsbad Energy Center Project (CECP), the city would need to determine what mitigation measures are necessary to minimize impacts to species associated with Agua Hedionda Lagoon. Feasible, possible measures to consider would include verification that:

- excessive demolition noise is limited during nesting season between March 15 and August 15, especially during dusk and early morning hours if birds are nesting in the middle of the lagoon;
- demolition work would be in compliance with state regulations administered by the Regional Water Quality Control Board to guarantee that work would not result in discharges to the nearby lagoon, which could impact special status species;
- demolition work would be in compliance with conservation measures associated with the North County Multiple Habitat Conservation Plan, the Habitat Management Plan for Natural Communities in the city of Carlsbad, and the Local Coastal Program and Agua Hedionda Land Use Plan; and
- the project owner employs a designated biologist to verify that all biological resource mitigation measures are implemented and that all on-site workers attend worker environmental awareness training so each worker is told that special status species and their habitat are located nearby and the reasons for protecting them.

Cultural Resources

Demolition and removal of the Encina Power Station (EPS), Units 1 through 5, all associated structures, the black start unit, and the 400-ft. exhaust stack, and remediation of the underlying property, as required by Energy Commission Condition of Certification **LAND-2** and **LAND-3** for the CECP**,** may have the potential to impact cultural resources on or in the vicinity of the EPS project site. The city's future analysis will likely focus on whether project activities would result in a significant direct, indirect, or cumulative environmental impact under California Environmental Quality Act (CEQA), and whether these activities comply or are consistent with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS), as they relate to cultural resources.

[16](http://www.carlsbadca.gov/services/environmental/hmp/docs/Documents/regulatory/hmp/@CompleteHMP.pdf.

As part of the environmental assessment, we suggest the city of Carlsbad consider the extent to which the EPS demolition, removal, and remediation could affect historical and archaeological (cultural) resources, as defined in CEQA Guidelines §15064.5(a). The city will provide an overview of the environmental setting and cultural history of the project area, an inventory of the cultural resources identified in the project vicinity, consideration of the significance of those cultural resources, and an analysis of the effects of possible project impacts on those cultural resources, using significance criteria from CEQA. Laws, Ordinances Regulations and Standards (LORS) relevant to the EPS demolition project include:

- Public Resources Code §§ 5020.1(h), 5024.1, and 21083.2
- California Code of Regulations, Title 14, §§ 15064.5(d,e,f) and 15126.4(b)
- California Health and Safety Code § 7050.5
- City of Carlsbad General Plan (2006), §III – Environmental Goal A

As noted in the CECP FSA,[17] there are 35 previously recorded resources within one mile of the proposed CECP project. Given that the EPS demolition area is immediately adjacent to the CECP site, those resources included in the CECP FSA Inventory of Cultural Resources would also be relevant for the EPS demolition project. The historical significance of elements of the EPS power station, including the 400 foot exhaust stack, and the power station as a whole, will also be considered by the City of Carlsbad, as construction of the station began in the early 1950s. The City of Carlsbad will assess whether the demolition of EPS, including effects of demolition activities, such as vibrations, could impair the materials or structural stability of historic structures or cause a substantial adverse change to the historical significance of a building, landscape, or district, resulting in a finding of a significant environmental impact under CEQA. As with the built environment resources, the city of Carlsbad will assess the potential for the EPS demolition project to adversely affect any known archaeological resources, along with the significance of any potential impacts.

It is likely that the EPS demolition project would require subsurface disturbance in the project area, which may have been utilized during prehistoric and historic times. As a result, the City should consider the possibility that the project may have the potential to adversely affect as-yet unknown archaeological resources if soil remediation activities extend beyond the 3 to 9 meters of fill-soil the EPS was built upon, and into native soil.

While the Energy Commission will not be responsible for the environmental analysis of the EPS demolition, removal, and remediation or monitoring and enforcement of any imposed conditions or mitigation, proposed mitigation related to the construction of the Carlsbad Energy Center Project (CECP) are appropriate examples of potential, feasible mitigation measures for the demolition of the EPS. Specifically, mitigation measures and conditions of approval, similar to those required by Energy Commission Conditions of Certification CUL-1 through CUL-8 for the CECP, would facilitate the identification and assessment of previously unknown archaeological resources encountered during construction and would mitigate significant project impacts on newly found or known resources.

Hazardous Materials Management

The city of Carlsbad's hazardous materials management analysis will determine if the proposed EPS demolition has the potential to cause significant impacts on the public as a result of the use, handling, storage, or transportation of hazardous materials at the proposed site. If significant adverse impacts on the public are identified, city staff will also evaluate the potential for demolition plan alternatives and additional mitigation measures to reduce those impacts to the extent feasible.

The quantities of hazardous materials on site, their relative toxicity, their physical state, and/or their environmental mobility are currently unknown, based on lack of detailed information, but should be assessed in the City's analysis. The handling and removal of hazardous materials during demolition activities should follow Best Management Practices (BMPs) to minimize environmental effects.

Several factors associated with the area in which a project is to be located affect the potential for an accidental release of a hazardous material that could cause public health impacts. These include:

- local meteorology;
- terrain characteristics; and
- location of population centers and sensitive receptors relative to the project.

City staff will review and assess the potential for the transportation, handling, and use of hazardous materials to impact the surrounding community. Their analysis will likely address the potential impacts on all members of the population including the young, the elderly, and people with existing medical conditions that may make them more sensitive to the adverse effects of hazardous materials. In order to accomplish this goal, city staff will utilize the most current public health exposure levels (both acute and chronic) that are established to protect the public from the effects of an accidental chemical release.

In order to assess the potential for released hazardous materials to travel off site and affect the public, city staff will analyze several aspects of the proposed demolition, including the presence and proper disposal of hazardous materials. The city staff will review the proposed engineering and administrative controls concerning hazardous materials presence, handling and removal during demolition activities.

The Certified Unified Program Agency (CUPA) with the responsibility to review Risk Management Plans (RMPs) and Hazardous Materials Business Plans (HMBPs) will need to be determined at the time the demolition permit is filed with the city, and the official environmental review process by the city commences. While the Energy Commission will not be responsible for the environmental analysis of the EPS demolition, removal, and remediation or monitoring and enforcement of any imposed conditions or mitigation, proposed mitigation for hazardous materials related to the construction of the Carlsbad Energy Center Project (CECP) are examples of feasible mitigation measures to consider for the demolition of the EPS. These proposed conditions could include the following protocols:

[17] JRP Historical Consulting (JRP) study from CECP AFC (Appendix 5.3B)

- review the chemicals and their anticipated amounts and determine the appropriateness of their proposed handling and removal;
- review the chemicals that may be present in small amounts or whose physical state is such that there is virtually no chance that a spill would migrate off site and impact the public were removed from further assessment;
- review and evaluate proposals and plans to prevent spills or releases, including engineering controls and administrative controls, such as worker training and safety management programs;
- review and evaluate proposals to deal with accidents. These measures would include engineering controls such as catchment basins and methods to keep vapors from spreading and administrative controls such as training emergency response crews.
- Review theoretical impacts on the public of a worst-case spill of hazardous materials, and evaluate proposed mitigation measures. If the proposed mitigation is determined by city staff to not be sufficient in reducing the potential for adverse impacts to an insignificant level, city staff will propose additional prevention and response controls until the potential for causing harm to the public is reduced to an insignificant level.

Noise

The demolition of a building, bridge or any large steel and concrete structure will create noise, or unwanted sound. The character and loudness of this noise, the times of day or night that it is produced, and its proximity to sensitive receptors combine to determine whether the demolition activities would meet applicable noise control laws and ordinances and whether it would cause significant adverse environmental impacts that would necessitate feasible mitigation measures to off-set or reduce to a level of less-than-significant.

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified and that such impacts be eliminated or mitigated to the extent feasible. Section XII of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

- exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance or applicable standards of other agencies;
- exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Factors the city will most likely consider in determining the significance of an adverse impact as defined above include:

- the resulting combined noise level;[18]
- the duration and frequency of the noise;
- the number of people affected;
- the land use designation of the affected receptor sites; and
- public concern or controversy as demonstrated at workshops or hearings or by correspondence.

Noise impacts are usually considered to be insignificant in terms of CEQA compliance if:

- the activity is temporary;
- use of heavy equipment and noisy activities are limited to daytime hours; and
- all industry-standard noise abatement measures are implemented for noise-producing equipment.

Demolition of a large industrial facility such as the EPS can be expected to be noisier than permissible under usual noise ordinances. Noise created during certain hours of the day is commonly exempt from enforcement by local ordinances and restricted to certain hours of the day. Section IV.B of the City of Carlsbad Noise Guidelines Manual describes the City's process to evaluate noise impacts of proposed projects. This process invokes guidelines and sets community noise exposure limits for noise that impacts any residence, schools, libraries, churches, hospitals and nursing homes at 60 dBA CNEL. Chapter 8.48 of the City of Carlsbad Municipal Code addresses Noise. Section 8.48.010 limits disturbing or offensive construction noise to the hours between 7:00 a.m. and sunset on weekdays and between 8:00 a.m. and sunset on Saturdays, and prohibits such noise on Sundays and on 7 major holidays. Section 8.48.020 allows the city manager to permit exceptions to these limits in nonresidential zones where there are no inhabited dwellings within 1,000 feet of the source of noise.

Public Health

Demolition has the potential for release of toxic contaminants into the air or water. People may come into contact with them through inhalation, dermal contact, or ingestion via contaminated food or water. Air pollutants for which no ambient air quality standards have been established are called non-criteria pollutants. Unlike criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide, non-criteria pollutants have no ambient (outdoor) air quality standards that specify levels considered safe for everyone. Since non-criteria pollutants do not have such standards, a health risk assessment is used to determine if people might be exposed to those types of pollutants at unhealthy levels. A health risk assessment typically consists of the following steps:

- Identify the types and amounts of hazardous substances that demolition activities could emit to the environment;

[18] For example, a noise level of 40 dBA would be considered quiet in many locations. A noise limit of 40 dBA would be consistent with the recommendations of the California Model Community Noise Control Ordinance for rural environments and with industrial noise regulations adopted by European jurisdictions. If the project would create an increase in ambient noise no greater than 10 dBA at nearby sensitive receptors, and the resulting noise level would be 40 dBA or less, the project noise level would likely be insignificant.

- Estimate worst-case concentrations of demolition emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants that people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects.

Initially, a screening level risk assessment is performed using simplified assumptions that are intentionally biased toward protection of public health. The risks for screening purposes are based on examining conditions that would lead to the highest, or worst-case risks, and then using those conditions in the study. Such conditions could include:

- Using the highest levels of pollutants that could be emitted during demolition activities;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses).

A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. The risk assessment process will address three categories of health impacts: acute (short-term) health effects, chronic (long-term) non-cancer effects, and cancer risk (also long-term). Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract. City staff will determine the health effects of exposure to toxic emissions based on demolition-related impacts to the maximum exposed individual. If impacts are found to be significant, the project owner will be required to off-set the impacts through appropriate mitigation measures.

Soil and Water Resources

The soil and water review of EPS demolition will most likely focus on the potential for the demolition activities to:

- cause accelerated wind or water erosion and sedimentation;
- exacerbate flood conditions in the vicinity of the project;
- adversely affect surface-water or groundwater supplies;

- degrade surface-water or groundwater quality; and

- comply with all applicable laws, ordinances, regulations, and standards (LORS).

Where the potential for impacts is identified, city staff could propose mitigation measures to reduce the significance of the impact and, as appropriate, and recommend conditions of certification to ensure that any impacts are less than significant and the project complies with all applicable LORS. The following LORS and state and local policies will be of particular relevance when determining the significance of potential impacts associated with the proposed demolition project.

- The Clean Water Act requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water.

- The Resource Conservation Recovery Act of 1976 seeks to prevent surface and groundwater contamination.

- California Constitution, Article X, section 2 requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use is prohibited.

- California Water Code, section 13260 establishes waste discharge requirements for any discharge that could affect the water quality of the state.

- California Water Code, Section 13523 requires the San Diego Regional Water Quality Control Board (SDRWQRB) to prescribe water reuse requirements for water that is to be used as recycled water after consultation with the California Department of Public Health (DPH).

- California Water Code, Section 13550 requires the use of recycled water for industrial purposes if recycled water is available.

- The City of Carlsbad Municipal Code Chapters 13.04, 13.10, and 13.16 requires new sources of domestic and industrial wastewater to obtain discharge permits from the City.

- The City of Carlsbad Municipal Code Chapter 14.08 establishes procedures and requirements for connection to the City's potable water system.

- The City of Carlsbad Municipal Code Chapter 15.12 authorizes the City to implement its municipal Storm Water Management and Discharge Control provisions in accordance with the requirements of the SDRWQCB Order No. R9-2007-0001.

It is very likely that demolition activities will require water for dust control, equipment washing, soil compaction, and other short-term uses. The use of potable water for construction (demolition) activities should be avoided when a water source of lower quality

is available, in keeping with the California Constitution, Article X, section 2, which states in part: " … that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."

Demolition activity could also require an erosion and sediment control Best Management Practices (BMPs) in a Stormwater Management and Pollution Prevention Plan (SWMPPP). A proposed BMPs would provide soil erosion and treatment control methods for trapping eroded sediments during demolition activity. Potential BMPs could include soil binders, straw mulch, dust suppression, storm drain inlet protection, check dams, velocity dissipation, an infiltration trench, and contaminated soil management.

The Agua Hedionda Lagoon is listed as an impaired water body for indicator bacteria and sedimentation.[19] Sampling and testing of storm water discharge from demolition sites for sedimentation is required when there is a direct discharge to a receiving water body listed as impaired due to sedimentation. Within the SWMPPP, the applicant for EPS' demolition will need to include a Sampling and Analysis Plan to determine whether the BMPs used during demolition are effective in controlling potential demolition-related pollutants from coming in contact with storm water.

The San Diego County Municipal Storm Water Permit requires the implementation of storm water regulations addressing storm water pollution issues in development planning and construction (demolition) associated with public and private projects. Specifically, such projects are required to include storm water BMPs during demolition and as part of a project's permanent design to reduce pollutants discharged from the project site to the maximum extent practicable.

The City recently revised its Standard Urban Stormwater Management Plan (SUSMP) and Storm Water Standards Manual (manual) to meet the 2007 Municipal Permit requirements. The revised manual incorporates the requirements of the General Construction Permit (WQO-99-08-DWQ) and the General Industrial Activity Permit (WQO-97-03-DWQ). Additionally, the City's Storm Water Management and Discharge Ordinance (Municipal Code Title 15, Chapter 15.12) requires that all new development and redevelopment projects reduce pollutants in storm water discharges in order to achieve applicable water quality objectives pursuant to the Clean Water Act and the Municipal Permit.

It is not known what threat or "Tier" the EPS demolition will pose to water quality. The highest threat, Tier 3, applied to the CECP, and it can be assumed it would likewise apply to EPS' demolition. As the highest threat to water quality, the demolition project would be required to prepare a Tier 3 Construction Storm Water Pollution Prevent Plan (SWPPP). A Tier 3 Construction SWPPP is required to be prepared in accordance with the provisions of the General Construction Permit and the standards contained in the 2008 revision of the Storm Water Standards Manual. The applicant will therefore be required to prepare a Construction Stormwater Management and Pollution Prevention Plan in accordance with

[19] http://www.swrcb.ca.gov/rwqcb9/water_issues/programs/tmdls/lagoons_aguahediondacreek.shtml

the City's standards that are also consistent with federal, state, and municipal storm water discharge requirements promulgated by the Clean Water Act.[20]

Traffic and Transportation

The EPS demolition could affect the traffic and transportation system within the vicinity of the project site.

The following factors are relevant in assessing whether the demolition activity will have a significant impact and/or whether it would be in compliance with applicable LORS:

- cause an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system (i.e., would result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity, and;
- conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The EPS is located north of the intersection of Carlsbad Boulevard and Cannon Road. Primary site access for demolition workers would be from Cannon Road to Carlsbad Boulevard and through EPS' front gate. To avoid crossing adjacent rail lines, the primary demolition-related truck traffic would be from Avenida Encinas at Cannon Road, although city staff will determine the most appropriate routes at the time of the environmental assessment to avoid crossing adjacent rail lines.

The Caltrans *Highway Capacity Manual* (HCM) defines six levels of service for roadways or intersections ranging from LOS A, which represents the best operating conditions, to LOS F, which represents the worst. The city of Carlsbad uses the LOS criteria to assess the performance of its street and highway system and the capacity of roadways. The requirements are specified in the Citywide Facilities and Improvements Plan. No roadways in the project study area may fall below a level D during peak hours (6:30 a.m. – 8:30 a.m. and 3:30 p.m. to 5:30 p.m.) and LOS C during off-peak hours.

While the Energy Commission will not be responsible for the environmental analysis of the EPS demolition, removal, and remediation or monitoring and enforcement of any imposed conditions or mitigation, proposed mitigation related to the construction of the Carlsbad Energy Center Project (CECP) are appropriate examples of potential, feasible mitigation

[20] http://www.energy.ca.gov/sitingcases/carlsbad/documents/applicant/afc/CECP_Volume%202-Appendices/Appendix%205.15D_Industrial_SWPPP.pdf

measures the city may wish to condition the demolition of the EPS. These measure include:

- An appropriate demolition traffic control plan and implementation program should be developed and submitted which addresses the following issues:

    - timing of heavy equipment and building debris removal deliveries
    - redirecting construction traffic with a flag person
    - signing, lighting, and traffic control device placement if required
    - need for demolition work hours and arrival/departure times outside peak traffic periods
    - access for emergency vehicles to the project site
    - temporary closure of travel lanes
    - specification of demolition-related haul routes
    - identification of safety procedures for all those exiting and entering the site access gate

- Prior to demolition of the 400 foot EPS exhaust stack, the project owner shall work with the FAA to notify all pilots using the McClellan-Palomar Airport and airspace above the EPS of the pending changes. The project owner would submit to the FAA Form 7460-1, Notice of Proposed Construction or Alteration.

- Following completion of EPS demolition, the project owner shall repair any damage to roadways affected by demolition activity along with the primary roadways identified in the traffic control plan for construction traffic to the road's pre-project construction condition. The project owner shall comply with Caltrans and other relevant jurisdictions limitations on vehicle sizes and weights. In addition, the project owner shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Visual Resources

The existing Encina Power Station (EPS) property consists of the EPS generation facility, whose 200-foot tall main building enclosure, and 400-foot-tall exhaust stack are the tallest structures in the City and a prominent regional landmark. Although the generation structure and stack are large and industrial in character, they present a relatively simple, uncluttered architectural form comparable to a large building, albeit marked by the 400-foot tall exhaust stack, which extends its visibility and accentuates its visual dominance over a wider area. The demolition of EPS infrastructure, most notably its 400 ft. exhaust stack, will change the existing visual landscape in the 1-mile area surrounding the facility in a positive manner, reflected by the numerous public comments received by local residents regarding the Carlsbad Energy Center Project proposal.

Waste Management

The demolition of the EPS will produce a variety of mixed nonhazardous wastes, such as soil, wood, metal, concrete, wires, etc. Waste will be recycled where practical and non-recyclable waste will be deposited in a Class III landfill. The hazardous waste generated will most likely consist of used oils, chemicals, universal wastes, solvents, and universal

waste materials. Universal wastes are hazardous wastes that contain mercury, lead, cadmium, copper, and other substances hazardous to human and environmental health. Examples of universal wastes are batteries, fluorescent tubes, and some electronic devices, as well as asbestos and other more commonly-known carcinogens

As the City has indicated in its July 20, 2011, status report to the Committee, the City will act as the permitting and lead agency for demolition of EPS, whenever that occurs. Appropriate documentation about the nature of any potential or existing releases of hazardous substances or contamination at the site will be required by the city in its environmental assessment. If potential or existing releases or contamination at the site are identified, the significance of the release or contamination would be determined by site-specific factors, including, but not limited to: the amount and concentration of contaminants or contamination; the proposed use of the area where the contaminants/contamination is found; and any potential pathways for workers, the public, or sensitive species or environmental areas to be exposed to the contaminants. Any contamination or releases of hazardous substances that pose a risk to human health or environmental receptors would be considered significant, and would be mitigated accordingly.

As a first step in documenting existing site conditions, the city will require that a Phase I Environmental Site Assessment (ESA) be prepared[21]. The Phase I ESA is conducted to identify any conditions indicative of releases and threatened releases of hazardous substances at the site and to identify any areas known to be contaminated (or a source of contamination) or near the site.

In general, the Phase I ESA uses a qualified environmental professional to conduct inquiries into past uses and ownership of the property, research hazardous substance releases and hazardous waste disposal at the site and within a certain distance of the site, and visually inspect the property, making observations about the potential for contamination and possible areas of concern. After conducting all necessary file reviews, interviews, and site observations, the environmental professional then provides findings about the environmental conditions at the site. If additional investigation is needed to identify the extent of possible contamination, a Phase II ESA may be required. The Phase II ESA usually includes sampling and testing of potentially contaminated soil to verify the level of contamination and the potential for remediation at the site. For purposes of the Carlsbad Energy Center Project review, the Phase II ESA[22] was completed, and could be instructive to the city in the assessment of remediation needs for EPS' demolition.

While the Energy Commission will not be responsible for the environmental analysis of the EPS demolition, removal, and remediation or monitoring and enforcement of any imposed conditions or mitigation, proposed mitigation related to the construction of the Carlsbad Energy Center Project (CECP) are appropriate examples of feasible mitigation measures to consider for the demolition of the EPS. Proposed conditions are as follows:

[21] Title 20, California Code of Regulations, section 1704(c) and Appendix B, section (g)(12)(A). Note that the Phase I ESA must be prepared according to American Society for Testing and Materials protocol or an equivalent method agreed upon by the applicant and the Energy Commission staff.

[22] Phase II (Attachment DR73-1) for Environmental Site Assessment.

If potentially contaminated soil is identified during site characterization, demolition, excavation, or grading activities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the professional engineer or professional geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of Department of Toxic Substances Control, and the city stating the recommended course of action.

The project owner shall prepare a plan for appropriate removal of wastes generated during demolition of the EPS facility, which should include the following:

- a description of all demolition waste streams, including projections of frequency, amounts generated, and hazard classifications; and
- management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.

Worker Safety / Fire Protection

Worker safety and fire protection is regulated through laws, ordinances, regulations, and standards (LORS), at the federal, state, and local levels. Demolition workers at the EPS site may operate equipment and handle hazardous materials daily and may face hazards that can result in accidents and serious injury. Protection measures will therefore be employed to eliminate or reduce these hazards or to minimize the risk through special training, protective equipment, and procedural controls.

Worker safety and fire protection measures, once proposed for the EPS demolition, should be assessed to determine the adequacy of the proposed demolition to:

- comply with applicable safety LORS;
- protect the workers during construction and operation of the facility;
- protect against fire; and
- provide adequate emergency response procedures.

In addition to demolition worker safety issues, the potential exists for exposure to contaminated soil. The Phase I Environmental Site Assessment conducted for the Carlsbad Energy Center Project proceeding concluded that the areas beneath existing EPS structures may have environmental conditions that would require remediation and that this should be assessed during the time these structures are removed. To address the possibility that soil contamination would be encountered during demolition, the city of Carlsbad staff will likely propose mitigation measures requiring a registered professional engineer or geologist to be available during soil excavation and grading to ensure proper handling and disposal of contaminated soil.

The two primary issues city staff will assess in regard to Worker Safety are:

- the potential for impacts on the safety of workers during demolition activities, and
- fire prevention/protection, emergency medical response, and hazardous materials spill response during demolition.

Worker safety issues are thoroughly addressed by Cal/OSHA regulations. If all LORS are followed, workers will be adequately protected. Thus, the standard for city staff's review and determination of significant impacts on workers is whether or not the proponent for the demolition (EPS owner) demonstrates adequate knowledge about and dedication to implementing all pertinent and relevant Cal/OSHA standards.

Regarding fire prevention matters, on-site fire-fighting systems and the time needed by the Carlsbad Fire Department to respond to a fire, medical, or hazardous material emergency at the demolition site are important factors to consider. On-site systems should follow established codes and industry standards or be subject to additional measures. City staff will review and evaluate the local emergency responders capabilities and response time to determine the presence of adequately trained, manned, and equipped responders. If city staff determines that demolition activity would cause a significant impact on a local fire department, they may recommend mitigating this impact by providing increased resources to the fire department.

Industrial environments are potentially dangerous during demolition activities. Workers at the proposed EPS demolition would be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important that EPS's demolition have well-defined policies and procedures, training, and hazard recognition and control at its facility (typically called a "Safety and Health Program") to minimize such hazards and protect workers. If demolition plans comply with all LORS, workers will be adequately protected from health and safety hazards.

While the Energy Commission will not be responsible for the environmental analysis of the EPS demolition, removal, and remediation or monitoring and enforcement of any imposed conditions or mitigation, proposed mitigation related to the construction of the Carlsbad Energy Center Project (CECP) are appropriate examples of feasible mitigation measures to consider for the demolition of the EPS. The proposed conditions are as follows:

The project owner shall submit to the city a copy of the Project Demolition Safety and Health Program containing the following:

- a Demolition Personal Protective Equipment Program;
- a Demolition Exposure Monitoring Program;
- a Demolition Injury and Illness Prevention Program;
- a Demolition Emergency Action Plan; and
- a Demolition Fire Prevention Plan.

REFERENCES

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AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

August 12, 2011

MIKE MONASMITH
PROJECT MANAGER
CALIFORNIA ENERGY COMMISSION
1516 9th STREET
SACRAMENTO, CA 95814

Dear Mr. Monasmith:

The District is providing this letter in response to questions raised concerning the status of the District's Final Determination of Compliance (FDOC) in light of the July18, 2011, letter from the U.S. Environmental Protection Agency (EPA) to the applicant of the Carlsbad Energy Center Project (CECP). In its letter, EPA withdrew its previous determinations that the CECP was not subject to Prevention of Significant Deterioration (PSD) requirements because the applicant had failed to commence construction by June 30, 2011 (and hence was subject to an applicability determination for federal PSD based on the emission of greenhouse gases). In addition, EPA stated that its prior analysis contained an error. As such, EPA stated that neither its previous determination nor the analysis that the determination was based on could be relied upon for future PSD applicability determinations. In particular, one element of EPA's revoked analysis was a discretionary decision under 40 CFR §52.21 (b)(48)(i) to use a time period different from the standard period specified in 40 CFR §52.21 (b)(48)(i) over which to calculate baseline actual emissions.

These decisions by EPA do not affect the status or the conclusions of the District's FDOC. The District is currently not delegated to implement federal PSD by EPA nor does it have a PSD rule that has been approved by EPA. Hence, PSD permitting for federal PSD is solely the responsibility of EPA at the current time. The District's New Source Review (NSR) rules do contain provisions for PSD that the District implements locally. The proposed project's compliance with these provisions was evaluated in the FDOC in accordance with District Rules and Regulations. EPA's determinations on PSD are not relevant to that evaluation since the evaluation is based on the District's rules, which have not been changed. With respect to nonattainment NSR, any determinations made in the FDOC are not affected by decisions regarding PSD since nonattainment NSR is a separate program from PSD. This would include the baseline used to calculate emission offset requirements for oxides of nitrogen (NOx).

It is worth noting that, although the District PSD provisions reflect many elements of federal PSD, there are some differences. In particular, the District's time period for calculation of baseline emissions differs from that in federal PSD. In addition, the District currently has no authority in its Rules and Regulations to address GHGs.

In summary, the District considers that the FDOC remains valid at this time and reaffirms the conclusions reached therein. While the District may seek federal delegation of the PSD permitting program in the future, at this time the PSD permit remains a separate matter under federal jurisdiction and permitting by the EPA. Thus, EPA would currently be the agency to issue a PSD permit, with no effect on the validity of the District's FDOC.

If you have any questions, don't hesitate to contact me at 858-586-2750.

Sincerely,

Steve Moore

STEVEN MOORE
Senior Engineer, San Diego County Air Pollution Control District

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
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APPLICATION FOR CERTIFICATION FOR THE *CARLSBAD ENERGY CENTER PROJECT*

Docket No. 07-AFC-6
PROOF OF SERVICE
(Revised 8/1/2011)

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DECLARATION OF SERVICE

I, J. Mike Monasmith declare that on, August 12, 2011, I served and filed copies of the attached STAFF SUPPLEMENTAL TESTIMONY, dated August 12, 2011. The original document, filed with the Docket Unit or the Chief Counsel, as required by the applicable regulation, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitingcases/carlsbad/ index.html].

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(*Check all that Apply*)

For service to all other parties:

__X__ Served electronically to all email addresses on the Proof of Service list;

____ Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

AND

For filing with the Docket Unit at the Energy Commission:

__X__ by sending an original paper copy and one electronic copy, mailed with the U.S. Postal Service with first class postage thereon fully prepaid and emailed respectively, to the address below (preferred method); *OR*

____ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 08-AFC-11
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

____ Served by delivering on this date one electronic copy by email, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.